DETECTOR FOR SHORT WAVE FIBER OPTIC COMMUNICATIONS WITH COMPENSATION TO REDUCE DETECTOR JITTER

Abstract of the Disclosure

A detector is provided for short wave fiber optic communication having compensation to reduce detector jitter. The detector includes a photodetector providing a modulated current. A transimpedance amplifier is coupled to the photodetector receiving the modulated current and providing an output voltage signal. An output buffer is coupled to the transimpedance amplifier receiving the output voltage signal. The output buffer includes a differential transistor pair; a pair of source degeneration resistors connected to the differential transistor pair; and a capacitor coupled between connections of the differential transistor pair and the source degeneration resistors. The value of the capacitor coupled between connections of the differential transistor pair and the source degeneration resistors is selected to reduce jitter. The capacitor passes high slew rate transimpedance amplifier output voltage signals more readily than low slew rate transimpedance amplifier output voltage signals. The effect of the capacitor is to bypass the gain limiting effects of the source degeneration resistors. As a result the differential transistor pair accentuates high slew rates over lower ones so that detector jitter is reduced.